TABLE OF CONTENTS

FEATURE SPEAKERS 1

NETWORK PLANNING TECHNIQUES - Leroy O. Gillette - Chairman 2

RICHARD E. MATTHEWS
The PERT Management System 3

WILLIAM F. ASHLEY
The Resources Planning and Scheduling Method and the Management Concept 5

DONALD H. DENHOLM
Managing Major Prototype Projects in the Aerospace Industry 11

CONTROLLING INDIRECT LABOR STAFFING (Sponsored by Management Division, AIIE) - Simon H. Wareham, Jr. - Chairman 20

MAURICE R. VALENTE
Controlling Indirect Labor Staffing through Work Measurement Maintenance Function Case Study 21

INDUSTRIAL ENGINEERING IN THE SPACE AGE (Sponsored by Aerospace Division, AIIE) - John J. Rogers - Chairman 24

A. T. GUNSTER
Industrial Engineering and the Moon 25

QUALITY ASSURANCE AND RELIABILITY - Dr. John W. Enell - Chairman 30

THE KAISER-STEEL UNION LONG RANGE SHARING PLAN - Bertram Gottlieb - Chairman ... 32

NEW FRONTIERS IN STANDARDS - Wallace J. Richardson - Chairman 34

RICHARD F. STOLL
General Purpose Data (MTM-GPD) The Standard Data System, The MTM Association Developed and Sponsors 35

THOMAS G. FAIRSERVICE
Autorate - Computer Aid in Industrial Engineering 41

EVALUATING CAPITAL INVESTMENT PROPOSALS - Frederick A. Cline, Jr. - Chairman ... 50

JOSEPH H. GACH
Methods and Techniques Used in Determining Rate of Return 51

MANAGEMENT CONTROL IN REAL TIME - Dr. Rocco C. Martino and Dr. Adrian M. Mc-Donough - Co-Chairmen 62

EDGAR C. GENTLE, JR.
Keying the Executive to Real Time Concepts 65

RICHARD M. BLOCH
Communication Oriented Data Processing 72

HERBERT C. HARTMANN
Management Control in "Real Time" in a Manufacturing Industry 73

LINEAR RESPONSIBILITY CHARTING - A NEW APPROACH TO ORGANIZATION ANALYSIS - George F. Rogalsky, Jr. - Chairman 74

WILLIAM F. HYDE
Linear Responsibility Charting - An Engineering Approach to Organization Planning .. 75

ALLOCATION AND CONTROL MODELS AND SYSTEMS - Stanley E. Axenfeld - Chairman 82

THOMAS L. NEWBERRY
Elements of Scientific, Computerized, Production and Inventory Control 83

JOHN R. CANADA
Rate of Return: A Comparison Between The Discounted Cash Flow Model and a Model Which Assumes an Explicit Reinvestment Rate for The Uniform Income Flow Case 91

GEORGE M. PARKS
The Allocation of Men and Equipment in Public Service - An Operations Research Case Study 97

RUDDELL REED, JR.
An Inventory Management Model to Secure Stock-Out Protection Economically in Hospitals 105

THE ROLE OF THE INDUSTRIAL ENGINEER - Robert F. Walker - Chairman 110

EDWARD L. PAGE
Engineering Approaches to a Social Problem: Overproduction - Underemployment 111

THOMAS B. POMEROY
Opportunities for Industrial Engineers In Human Factors Engineering 117

FRANK H. McCARTY
Cost Estimating - A Career For Industrial Engineers 123

DAVID D. BEDWORTH
Does Digital Computer Process Control Require A New Scope of Knowledge for the Industrial Engineer? 129

EFFICIENCY AND COST STUDIES OF THE BUSINESS ENTERPRISE - Harold M. Shaw - Chairman 136

DAVID KOEPSEL
Distribution Analysis 137

DR. SAMUEL S. STEPHENSON
A Quantitative Measurement of Company Productivity 143

ROGER F. JEWETT
Forecasting the Efficiency and Output of a Growing Organization 151

RALPH O. SWALM
A Preliminary Report on a Study of the Industrial Implications of Cardinal Utility Theory 165

PLANNING AND SCHEDULING TECHNIQUES AND CONCEPTS - William G. McDowell - Chairman 168

LOUIS W. HART, JR.
Simplified Project Cost and Schedule Control 169

HENRY J. PORTER, III
A Critique of Recent ADP Programs for PERT 175

ROBERT S. GOLDMAN
SAC - An Effective Program for Scheduling, Analyzing, and Controlling the Quality Control Function 181

HUGO E. MAYER, JR.
On The Reliability of Scheduling 185

PERFORMANCE AND WORK MEASUREMENT - Edward W. Bercofski - Chairman 186

JOHN M. GEISEL
White Collar Work Measurement - A Management System for Professional and Technical Work 187

HEWITT H. YOUNG
Time, Inventory, and Balance in the Production Line 197

CHARLES K. EMMA
Measurement of the Characteristics of a Random Traffic Process 201

FRANK ARMSTRONG
Universal Measurement 205

THE CHALLENGE IN TRANSPORTATION (Sponsored by Transportation Division, AIIE) - Joseph F. Quinn - Chairman 208

JOHN R. SHELTON
Project Aky Count - Aerial Photography for Transportation Analysis 209

HILMAR B. CHRISTIANSON
Transportation and the Industrial Engineer 219

WARREN R. MELLIN
The Challenge In Air Transportation 221

AUTOMATED MILITARY INFORMATION SYSTEMS - Harold Silverstein - Chairman 228

THOMAS S. McFEE
The Evolution of a Command System 229

ARNO CASSEL
Design of Display Systems 239

INDUSTRIAL ENGINEERING IN THE UTILITIES - James K. McNally - Chairman 248

FREDERIC D. JUSTIN
The Industrial Engineer in a Utility 249

SAMUEL S. BAXTER
Industrial Engineering In A Large Water Utility 251

WHAT MANAGEMENT EXPECTS FROM THE INDUSTRIAL ENGINEER - Orlando J. Feorene - Chairman 256

CHARLES W. IAMS, JR.
What Management Expects From The Industrial Engineer 257

CHARLES W. PIKE
What Management Expects From The Industrial Engineer 261

VALUE ENGINEERING SYMPOSIUM (Sponsored by Value Engineering Division, AIIE) - Frank J. Johnson - Chairman 266

GEORGE E. FOUCH
Productivity and Value Engineering in The Department of Defense 267

GEORGE J. PARKER
Value Analysis and the Industrial Engineer 273

MANAGEMENT PERFORMANCE STANDARDS - Edward R. Zebrowski - Chairman 280

V. DONALD SCHOELLER
The Management Process 281

VALIDITY IN WORK MEASUREMENT - Philip J. Thorson - Chairman 290

JOHN L. SCHWAB
The Measurement of Human Effort - Part II 291

LUCIEN BROUHA
Physiological Assessment of Job Stress 293

ADVANCED TECHNIQUES IN PLANT LAYOUT (Sponsored by Plant Layout and Materials Handling Division, AIIE) - James M. Moore - Chairman 300

RICHARD MUTHER and JOHN D. WHEELER
New Developments in Using the Relationship Chart for Better Layouts 301

AUTOMATION - ITS IMPACT ON LABOR, MANAGEMENT AND THE PUBLIC - David Lasser - Chairman 312

AUTOMATED TRAINING - Dr. Carl A. Silver - Chairman 314

JOHN S. ABMA
Theory and Research in Programmed Instruction 315

JAMES J. REGAN
Automated Instructional Hardware and Software: An Overview 325

DR. EDWIN M. HUDSON
Teaching Machines: Present and Future 331

NEW MATERIALS AND PROCESSES FOR ADVANCING TECHNOLOGY - Dr. Ruben M. Brissey - Chairman 340

ROBERT V. KLINT
The Use of Plastics - A Materials Revolution 341

DR. PAUL D. GORSUCH
Improvement in Metals and Ceramics Through Microstructure Control 345

NEW TOOLS FOR PLANNING AND DECISION MAKING - Dr. George M. Parks - Chairman ... 346

TECHNICAL FILMS SESSIONS - Calvin C. Weigold - Chairman 347

CHIEF INDUSTRIAL ENGINEER'S FORUM - Malcom F. Miller and Raymond L. Shirtz - Chairmen 348

PLANT TOURS - Edward J. Sierleje - Chairman 349

WORKSHOPS - Vincent J. Perillo - Chairman 350

KEYNOTE ADDRESS - The Professional Industrial Engineer by William J. Vallette 355

AIIE NATIONAL ORGANIZATIONAL CHART 358

AIIE REGIONAL MAP 359

AIIE SENIOR CHAPTERS 360

AIIE STUDENT CHAPTERS 362